



OBSERVATIONS ON SOME CHANGES IN FORM OF
THE PROSTATE AND FLOOR OF THE BLADDER,
WITH EIGHT ILLUSTRATIONS. By REGINALD HARRISON,
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Plates.)

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IN former communications I have advocated and illustrated the employment of mechanical treatment in the early stages of prostatic obstruction,¹ and of operative measures² in more advanced and otherwise irremediable varieties of this affection. The treatment described in these papers was based upon a careful examination, on an extended scale, of the physical changes that take place in the prostate and associated parts as age advances. It is to these changes I purpose now briefly referring, in their relation not only to the act of micturition, but as inducing alterations in the parts which may under certain circumstances be regarded as contributing towards the formation of stone within the bladder. It is hardly necessary to observe that, because a person has a large prostate, this by no means implies that he either has or will have trouble in urinating. A considerable proportion of persons thus structurally affected pass

¹ *The Prevention of Stricture and of Prostatic Obstruction.* Churchill : London, 1881.

² "On the Treatment of Certain Cases of Prostatic Obstruction by a Section of the Gland," *International Medical Congress.* Copenhagen, 1884.

through life, and attain to very advanced ages, without being conscious of the enlargement. Nor is it at all difficult to understand, from an examination of the parts after death, how such persons remained free from inconvenience.

For the purpose of comparison, I have introduced two drawings of the relations of the normal prostate to the floor of the bladder and the openings of the ureters (Plates A and B). The most serious form of prostatic enlargement is that which more especially involves the floor of the gland, or that part of it which, from the days of Sir Everard Home, has been known as the third lobe. Even the slighter forms of the enlargement, when it is central and nipple-like in shape, as shown in Plate C, is usually attended with extreme irritability of the bladder, quite out of proportion to the actual size the growth has attained. It seems likely that in these cases the position of the prominence directly interferes with the sphincter action of the bladder, and consequently is more liable to excite irritability than when the whole gland shares equally in the hypertrophic change. It is in cases such as these that the use of the prostatic bougie or dilator is found of service in allaying irritation, and preserving the power of micturition undiminished in vigour as age advances.

A more advanced stage of this central form of prostatic hypertrophy is shown in Plate D. This represents the worst type of prostatic hypertrophy, for not only does it most effectually impede micturition, but it forms a serious obstacle to the introduction of the catheter. It has sometimes happened that the catheter has been made to enter the bladder by transfixing the base of the obstruction, as shown in Plate E. In this way I have seen the third lobe torn across, as shown in illustration F, which was taken from a *post-mortem* room specimen.

In two other instances which came under my notice, and served to support the practice I have urged in reference to the value of prostatotomy in cases of this kind, the same lesion, I believe, inadvertently happened, though fortunately the recovery of both patients rendered positive proof an impossibility. I will briefly relate the notes made of these cases:—

An elderly gentleman had long suffered from a large prostate

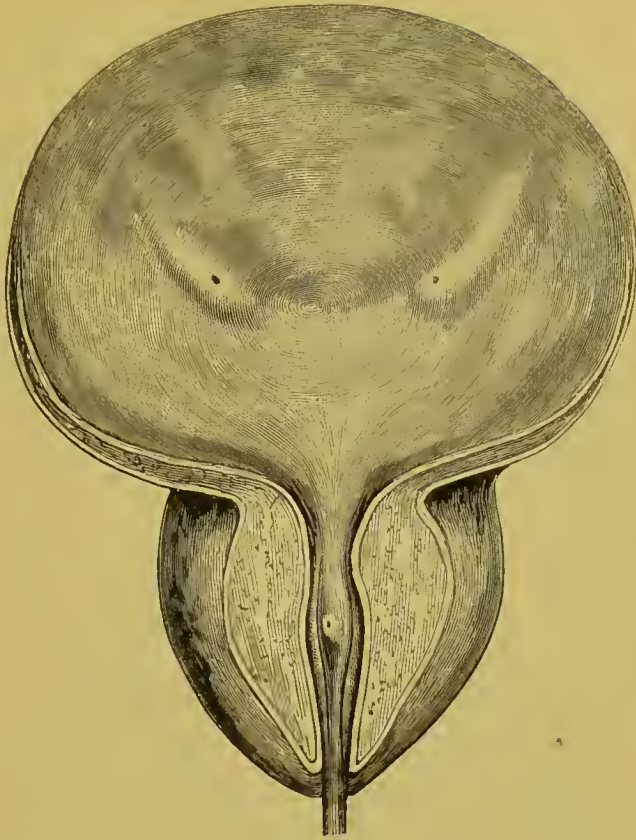


PLATE A.



PLATE P.



PLATE C.

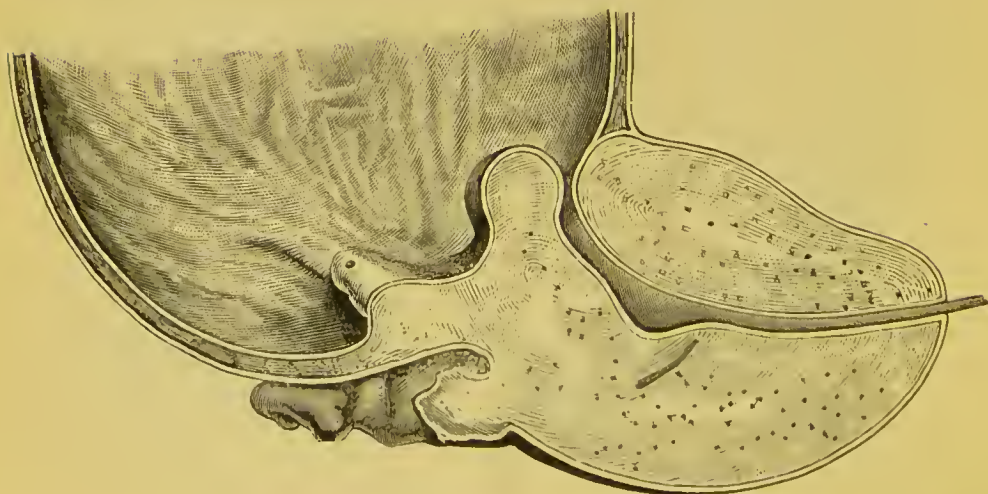


PLATE D.

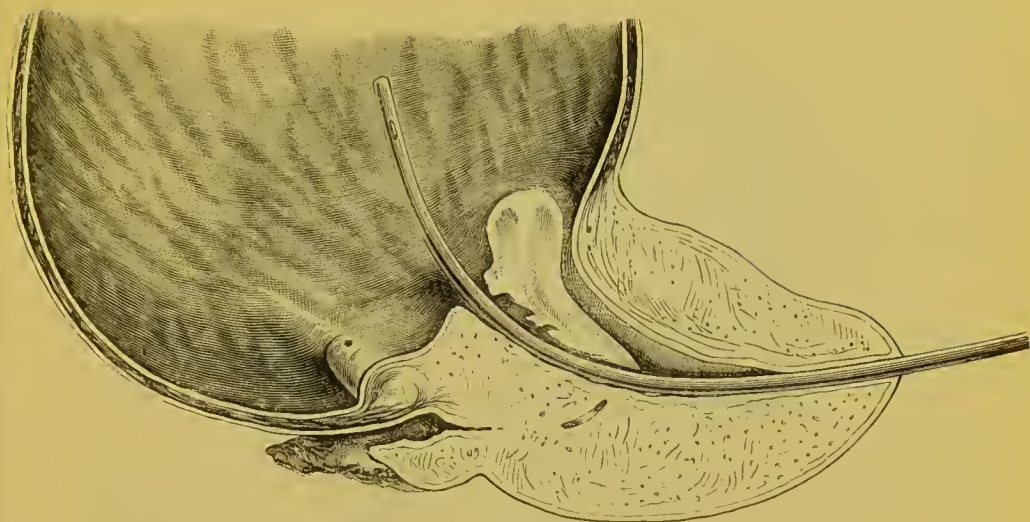
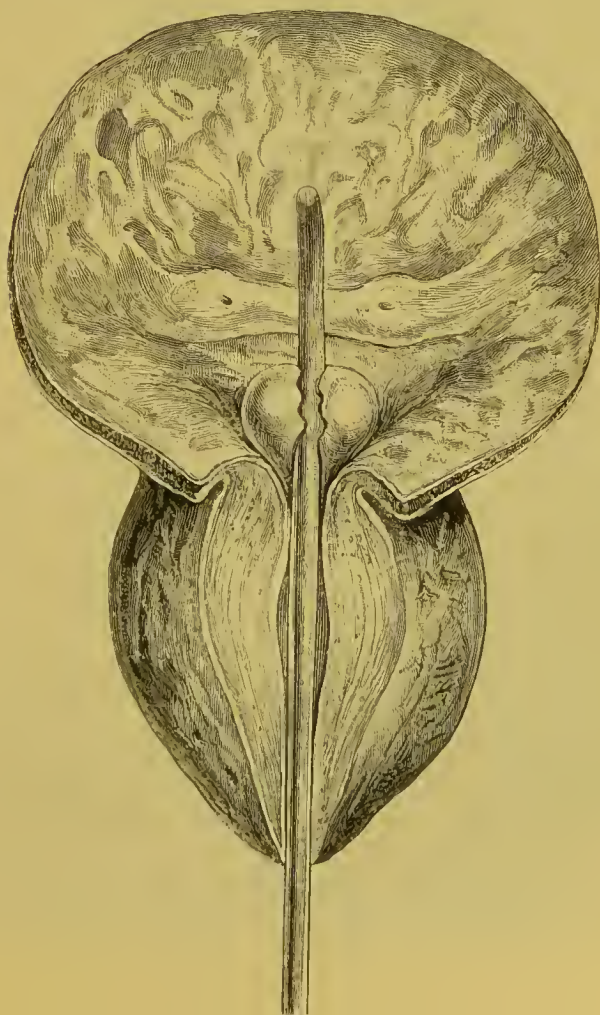


PLATE E.



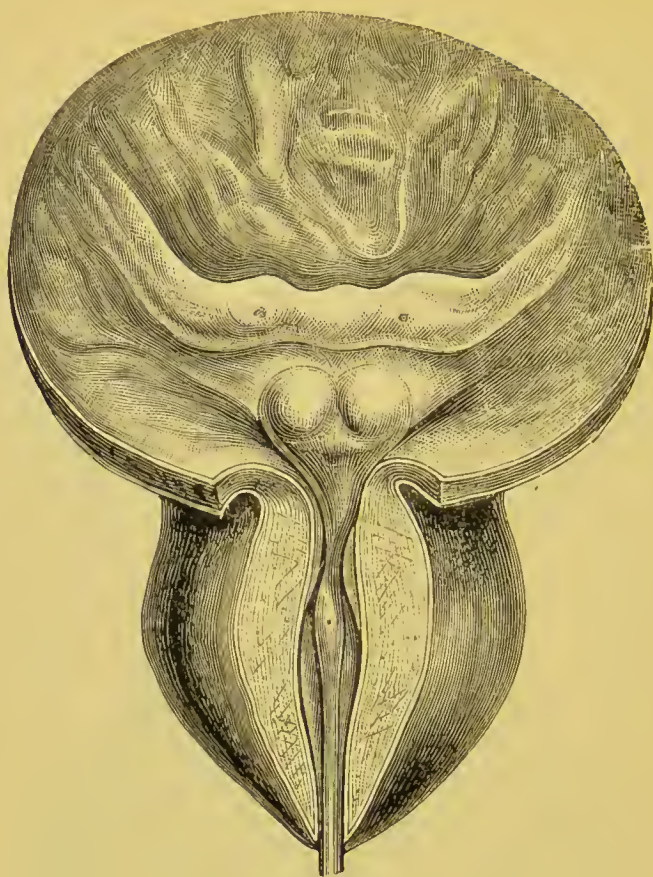


PLATE G.

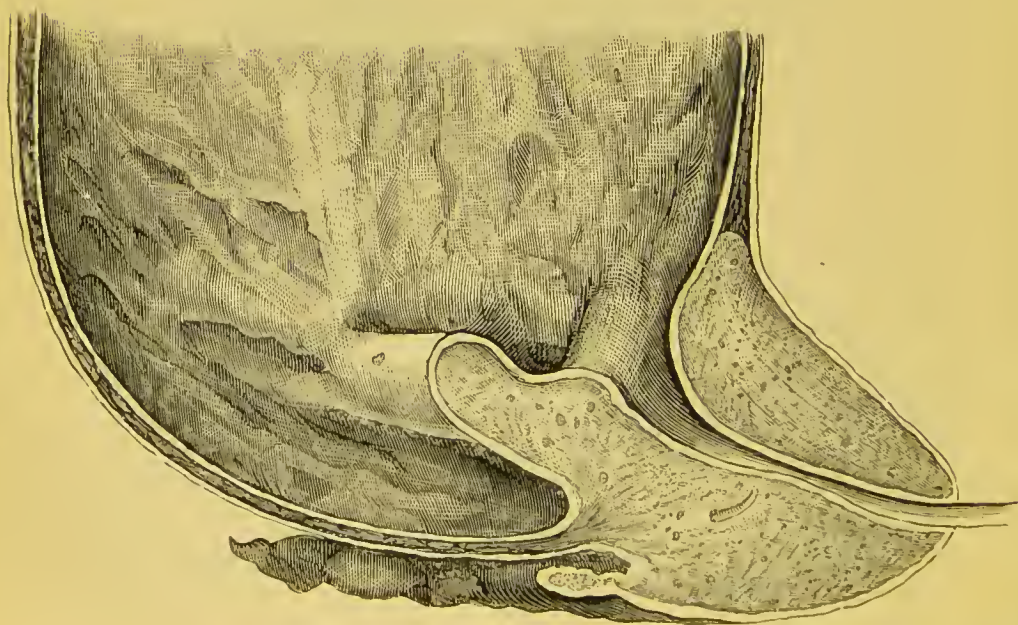


PLATE H.

with residual urine. There was some difficulty in getting the catheter into the bladder through the prostatic urethra, to do which the handle of the instrument had to be depressed very much. As other symptoms of vesical irritation showed themselves, he was on my advice sounded for stone. This operation was difficult, very painful, and followed by free and continuous hæmorrhage. Cystitis supervened, and the patient was exceedingly ill for about ten days. Three months after this he came to see and thank me for the operation I had advised, for though no stone had been discovered, he had since passed water easily, and had not required to use the catheter. A strong suspicion occurred to me as to what had been done by the operation of sounding which was followed by such serious symptoms. I passed him a full sized catheter, without either difficulty or pain, but what was still more significant, without finding any residual urine. How was this remarkable change to be accounted for? The conclusion I came to and noted was that not only had the obstructing prostate been punctured, but the bridge of tissue above the false passage had either been torn across, or had subsequently sloughed. How easily this could have happened is shown by a reference to illustrations E and F. My friend, the practitioner who attended this patient, at all events got the credit, and deservedly so, of having cured his patient, though, as the latter remarked to me, "the operation was pretty severe." Had an anæsthetic been used, it is probable that the patient would never have been fully conscious of the process by which, somewhat haphazardly, he had reaped so much permanent good.

The other instance is as follows :—Some years ago, I was asked by the late Mr Long to see with him an elderly gentleman who was blanched from profuse hæmaturia. Six days previously, a large metallic prostatic catheter had been passed for him with pain, difficulty, and hæmorrhage. In consequence, more especially of the profuse and continued bleeding, Mr Long had been called in. Every means was resorted to to arrest the bleeding, but failing these I was asked to do an exploratory operation, with the view of getting at the bleeding spot, which was deemed

to be within the prostatic urethra. I performed median perineal urethrotomy, and my finger, on entering the prostatic urethra, passed on into the bladder through a hole at the base of the projecting portion of the gland, which we concluded had been made by the prostatic catheter. As my finger was pushed in, a bridge composed of sloughy prostatic tissue broke down, thus rendering the opening into the bladder completely free. There was some considerable oozing of blood from the broken down prostate. The bladder was washed out and freed from clots, and an old fashioned umbrella-tampon introduced, by means of which the wound was carefully plugged. No further hæmorrhage occurred, urine escaped through the tube, and the latter was not removed for a week, when a fresh one was substituted. Though the patient remained in a critical condition for some weeks, he made a good recovery. For two years I frequently met him, and knew that he remained well. I heard of his death a short time ago from old age, without any return of his urinary troubles. Partly by the catheter, and partly by subsequent sloughing, the obstructing prostate was so completely removed that I was not surprised at the result just mentioned. I think I may claim these two cases as illustrations of prostatotomy, though accidentally performed, yet ending in complete and permanent cure. I wish I could say the same for other cases of forced catheterism which have incidentally come under my notice. The latter is a method of treatment too uncertain to commend itself to any surgeon unless under very exceptional circumstances. In connection with this form of prostatic enlargement, it should not be lost sight of that it is often quite impossible to demonstrate it, or even to suspect it, by rectal examination alone. Some of the most obstructing prostates give no evidence of this to the finger in the bowel. In the face of this, which must be apparent to any one who has taken the trouble to examine prostates from the bladder- as well as the bowel-side, in the *post-mortem* room, it seems remarkable that text-books should place so much reliance on rectal examinations in diagnosis. It is just one of those statements which conventionality has determined shall have the benefit of repetition,

but at the same time must be received with considerable reserve.

Not less important than the changes which take place in the shape of the floor of the prostate consequent on its elevation, are those which are secondary to them; these, for the most part, involve the bladder itself. As I have used the word floor in respect to the prostatic urethra, I will continue to apply it to that portion of the bladder which is continuous with it, and which anatomically is spoken of as the trigone. That the upward growth of the floor of the prostate must necessarily leave a depression above, in which urine collects, is a fact which is generally recognised and acted upon in practice. That this should be so is not remarkable, when we consider the absence in any appreciable quantity of muscular fibre from this portion of the viscus. Nature abhors a vacuum or useless space. Amongst the conservative processes we may recognise in the body as the outcome of a diseased action is the hypertrophy of the muscular fibres between the ureteral orifices, which takes place as secondary to the elevation of the prostate. The development of the inter-ureteral bar is well shown in figs. C, D, E, F, G, H, and represents the lowest limit of the movable portion of the bladder. I have very little doubt that this form of muscular hypertrophy is for the purpose of doing away with the pouch above the prostate, and is a natural outcome of spontaneous efforts by the development of extraordinary agents of micturition to expel the urine from a part where it is apt to lodge and cause inconvenience. In several of the drawings, for instance G and H, the hypertrophy of the inter-ureteral bar, and its gradual approach to the prostate, thus tending to remove an inconvenient depression, may well be studied.

But the development of the inter-ureteral bar by an excess in growth of its normal constituents, as appears from microscopic examination, though a conservative process, is not without its own inconvenience, for it naturally leads to the production of a change in shape, similar in some respects to what it was destined to meet. In this way a considerable depression may be formed

in the bladder above the line where the ureters enter, in which urine may lodge and be permanently retained.

Beyond the necessity for regular catheterism, it is not often that serious inconvenience arises out of this alteration in shape. I have, however, a drawing made from a specimen, for which I am indebted to Dr Alexander, where a depression thus formed above the inter-ureteral bar led to the formation of a saccule which eventually burrowed under the bar, as shown in the drawing H. Suppuration presently took place in this, and the saccule made its way by a rugged opening beneath the prostate. The specimen is a remarkable one of its kind in connection with the formation and course of vesical depressions. The specimen also illustrates the close approximation of the inter-ureteral bar with the enlarged prostate, and the obliteration of the depression above the gland, giving at first sight the impression that no hypertrophy of the prostate had really taken place. It is impossible to study carefully the various changes, a few of which I have endeavoured to illustrate, which take place in the prostate and the bladder, without recognising how physical is the nature of many of them, and consequently how much may be expected in their prevention and treatment from the proper employment of mechanical measures. I am indebted to Dr Dixon for the drawings, made from selected specimens of my own, which serve to illustrate these remarks.

